CERN
CH-1211 Geneva 23
Switzerland

the **Large Hadron Collider** project

LHC Project Document No. **LHC-LQX-TP-0001 rev. 0.1**	*CERN Part Identifier (19 chars)* HCLQXB_001-FL000001
CERN Div/Group or Supplier/Contractor Doc No **TD/FNAL/USA**	*Test Procedure Number* LQXB_Test_Plan
EDMS Document No. **408010**	

Nonconformity Report

IDENTIFICATION	
1. Originator's Name: Mike Lamm	6. Date: 22-Jan-2004
2. Contractor/Supplier: Fermilab	7. Part description: LQXB (Q2) Inner Triplet
3. Contract No: N/A	8. Qty: 1
4. Project Engineer: Jim Kerby	9. Dwg No: 5520-ME-390206 rev. C
5. Quality Manager: Jamie Blowers	

10. Found during what activity:

☐ Incoming inspection	☒ Final inspection
☐ In-process inspection	☐ Other:

11. Description of nonconformity (use continuation page if necessary)

Coil to (ground + heater) cold hipot reached 1.1kV, not the 1.2kV limit as defined in section 2.2.3 of the Acceptance Plan. Note also that the YT1142 heater was floated during this test (see the NCR for the heater short).

12. Action taken to prevent misuse (use continuation page if necessary)

None.

IMPORTANCE

13.	☒ Non critical	☐ Critical

DISPOSITION

14.	☒ Use-as-is	☐ Repair	☐ Reject	☐ Rework	☐ Return to supplier

Description of proposed action (use continuation page if necessary)

Based on other hipot testing, we believe this magnet should be used as-is. See continuation page for further details.

CORRECTIVE/PREVENTIVE ACTION

15. Description of proposed action (use continuation page if necessary)

The current interpretation of the data points to a test stand problem (see continuation page for more details). Changes have been made to the test stand subsequent to the testing of this magnet. Subsequent magnets have not exhibited this behaviour.

APPROVAL OF NON CRITICAL NONCONFORMITIES

16	Project Engineer: Jim Kerby	Date: 15-Mar-2004

APPROVAL OF CRITICAL NONCONFORMITIES

17	Project Management:	Date:

CLOSURE OF THE NONCONFORMITY

Planned actions have been completed and corrective/preventive actions have been initiated

	For non critical nonconformities Quality Manager or Project Engineer	For critical nonconformities Project Engineer
18	Name: Jamie Blowers Date: 15-Mar-2004	Name: Date:

NONCONFORMITY CONTINUATION PAGE

Section 14 continuation:
This cold hipot must be accomplished using the test stand instrumentation and bus feed throughs. We experienced several hipot problems with our test stand, problems we finally isolated and fixed but only after several months of investigation and only after a feed can-to-end can (zero magnet) cold test. By this time LQXB01 was removed from the test stand. In fairness we note that we do not fully understand the relationship between the breakdown level and location observed on the zero magnet test stand tests and that observed on the magnet + test stand tests. However, the wiring and grounding for this test stand is quite complicated, with instrumentation wires and shielding ground lines fanned out to several connectors.

Despite these test stand problems, the magnet passed other hipot tests which give us confidence in its hipot integrity. For example, it passed the 5kV in air hipot (section 2.1.5 of the Acceptance Plan). It also passed a 4 atmosphere warm helium hipot test to >1400 V, which from the literature is more stringent than a 1 atmosphere cold helium test. After the magnet was removed from the test stand, in room temperature N2, there was a final hipot test of heaters to (ground + coils) to 1500 V and coils to (ground + heaters) to 1500 V with low leakage current and no breakovers.

INSTRUCTIONS FOR COMPLETING THE NONCONFORMITY REPORT

1. Originator	Name of the person who identifies the nonconformity
2. Contractor/Supplier	Organisation where the nonconformity is detected
3. Contract No	CERN's contract or order No
4. Project Engineer	Name of the CERN or Institute engineer in charge of the contract
5. Quality Manager	Name of the person responsible for quality control
6. Date	Date when the nonconformity is identified
7. Part description	Name of the part such as it appears on drawing or contract or order
8. Qty	Number of parts or lots affected
9. Dwg No	Part drawing number and revision index
10. Found during what activity	Tick the appropriate box. If ticking *Other* explain the circumstances
11. Description of the nonconformity	Describe the problem, identify the requirements that are not met, give references to specifications, procedures etc. If possible describe the possible causes of the nonconformity, such as inadequate procedure, wrong test set-up and so on.
12. Action taken to prevent misuse	Describe what steps have been taken to ensure that the item is segregated from the normal production while the nonconformity remains unresolved.
13. Importance	P.E. to decide if the nonconformity is critical or not and tick appropriate box
14. Disposition	P.E. to decide on disposition, tick appropriate box and outline the details of the proposed actions.
15. Corrective/preventive action	P.E. to decide what action should be taken with the design, the manufacturing process, the testing procedure or any other circumstance to prevent the reoccurrence of the problem.
16. Approval of non critical nonconformities	Complete with the name of the Project Engineer and the date of approval.
17. Approval of critical nonconformities	Complete with the name of the Project Manager, the name of the approval list if appropriate, and the date of approval.
18. Closure of the nonconformity	For a non critical NC, complete with the name of the Quality Manager and the date of the verification. For a critical NC, complete with the name of the CERN Project Engineer and the date of the verification.

Note that points 16, 17 and 18 may be left blank for all nonconformities that are tracked using the EDMS system as described in chapter 3 of document LHC-PM-QA-611.00 "Management of Nonconformities"